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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,506	10/16/2003	Louise C. Sengupta	10209-0010-4	9036
85643	7590	04/27/2012		
PARATEK DOCKET			EXAMINER	
304 Indian Trace Rd, #750			KEMMERLE III, RUSSELL J	
Weston, FL 33326				
			ART UNIT	PAPER NUMBER
			1741	
			NOTIFICATION DATE	DELIVERY MODE
			04/27/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@gmgip.com

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Office Action Summary**Application No.**

10/687,506

Applicant(s)

SENGUPTA ET AL.

Examiner

RUSSELL KEMMERLE III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 February 2012.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1, 3, 7-11, 24, 25, 32-36 and 38-43 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1, 3, 7-11, 24, 25, 32-36 and 38-43 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-SB08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date ____
- 6) ☐ Other: ____

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1, 3, 7-11, 24, 25, 32-36 and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta (US Patent 5,427,988) in view of Montgomery (Montgomery, Douglas. Design and Analysis of Experiments. New York:John Wiley & Sons, Inc, 1997) and Zhu (US Patent 6,404,614).

Sengupta discloses a method of making an electronically tunable dielectric material that includes providing a layer of tunable material (such as barium strontium titanate, BTO) with two metal oxides (such as MgO and SiO₂) (Col 4 lines 3-63, Col 6 lines 14-37)). Sengupta specifically discloses that the BTO be in an amount of 40-99% and MgO 1-60% (Col 4 lines 8-11).

Sengupta does not disclose the average particle size of the metal oxide particles, however some average particle size would have to exist. The average particle size of materials used is well known to have an affect on numerous properties including strength, grain size and other factors. The selection of an appropriate grain size through routine experimentation would have been obvious to one skilled in the art. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration

between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

Sengupta does not disclose that after the product is made the properties recited in claim 1 are measured, and the process is repeated while adjusting the amount of one of the metal oxide materials.

However, this appears to be basic experimental analysis described by Montgomery as the "one-factor-at-a-time" approach where a baseline is established and a factor is changed while the remaining factors are held constant in order to determine how the response variable is affected (pages 4-5).

It would have been obvious to one skilled in the art, at the time of invention by Applicants, to have performed such basic experimental analysis on the process of Sengupta in order to determine which variable affect the final properties and how they do so. This would have been obvious in order to ensure that the most desirably body was being made.

Sengupta discloses the second additional metal oxide as silica, not as one of the materials recited in current claim 1.

Zhu discloses a similar method of making a BTSO material, and further discloses that additional materials added to the BTSO may include MgSiO_4 and CaSiO_3 and other Mg free compounds (claim 11). Zhu specifically discloses that the selection of the

additional materials (other than BTSO) allows for the creation of a material having high tunability, low insertion losses and tailorable dielectric properties (Col 5 line 62 - Col 6 line 13).

It would have been obvious to one of ordinary skill in the art at the time of invention by Applicants to have modified the method of Sengupta by using the additives taught by Zhu since these are taught to be known effective additives for making a BTSO material and adjusting properties such as tunability and loss of the body (the same properties adjusted by the additives in Sengupta). Since Zhu simply provides additional additives which can be used to control the properties being adjusted by Sengupta one skilled in the art would find it obvious to use these additives which would result in the desired properties.

Referring to claims 3, 33 and 34 as discussed above the selection of the average particle size would be obvious to one skilled in the art, and the additives taught by Zhu meets the current limitations.

Referring to claims 8-10 and 36, Sengupta discloses that the amount of the second oxide (such as SiO_2) will alter the dielectric constant of the finished body (since they are referred to as low dielectric materials). It would have therefore been within the abilities of one skilled in the art, at the time of invention by Applicants, to have modified the method of Sengupta by optimizing the amount of second oxide through routine experimentation in order to achieve the desired dielectric constant. This optimization would result in optimizing the weight ratio of the two additional metal oxides (MgO and SiO_2).

Referring to claims 24, 25, 39 and 40, Sengupta discloses that the tenability be 7-36% (Col 3 line 58 – Col 4 line 2). While it is not stated that this be the value at 8V/ μm , one skilled in the art would recognize this as being a desired tunability across all normal ranges (since no such value is given by Sengupta).

Referring to claims 7, 11, 35, 38 and 41 these fall within the disclosure of Sengupta as discussed above.

Referring to claims 42 and 43, Zhu discloses a number of additional oxide additives that may be used which meet the current claim limitations (Col 5 lines 13-21).

Response to Arguments

Applicant's arguments with respect to the specifically claimed composition of the additives have been considered but are moot in view of the new grounds of rejection above specifically addressing these newly added claim limitations.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUSSELL KEMMERLE III whose telephone number is (571)272-6509. The examiner can normally be reached on Monday through Thursday, 7:00-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on 571-272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. K./

Examiner, Art Unit 1741

/Matthew J. Daniels/
Supervisory Patent Examiner, Art Unit 1741